

IX.4.2A INTRODUCTION TO THE PREPROCESSOR DATA BASE DESCRIPTION

Purpose

The Preprocessor Data Base (PPDB) contains all the observed data and forecast data required by the Preprocessor Functions to produce time series.

It holds many different types of data such as:

- o precipitation
- o temperature
- o forecasted maximum and minimum temperature
- o river, reservoir and snow (RRS)
- o MDR
- o stranger station precipitation reports

The data files are organized in two different forms:

- o daily data files which store data for each data type and day where one block of data contains one day of data for all stations
- o RRS data files which store data by station for each data type for a specified time period; the data consists of a time, data value and for some data types a time interval

The Data Entry Component enters the data for all the data types that can be stored in the PPDB. Entries are made by station for a specific time period which may span several days. The stations must have previously been defined in the PPDB by the Preprocessor Parametric Initialization Program (PPINIT - see Section VI.3.3 [[Hyperlink](#)]). Stations can be referenced by 8 character identifier or user assigned integer number. Station reporting statistics are kept for each station with 24 hour or stranger station precipitation or an RRS data type.

The PPDB contains the input data for all Operational Forecast Program Preprocessor Functions. It is organized for efficient data retrieval by these functions. RRS data is read by station. All other data types are read by day.

The PPDB can be accessed using the routines described in Section IX.3.4 [[Hyperlink](#)]. How these routines are used is described in Section IX.5.3 [[Hyperlink](#)].

Physical Characteristics

The PPDB includes at least 3 separate files; 1 index file and 2 data files. More data files can be added if necessary.

The data types are divided according to the time span and format required by the Preprocessors. Data are data stored by station and data type or they are stored by day.

RRS data are stored in files with one variable length record for a 24 hour period. In addition, these daily data files contain pointer

records containing information required by the Preprocessors. The number of daily data files is flexible. Combining different data types in one file is possible because each Preprocessor will be executed separately and can therefore deal with only one section of the data file.

The logical unit for the file in which a data type is to be stored is a value set when the data type is defined. A set of PPDB files can be defined with only some of the daily data types defined. It is possible to add daily data types and/or files if necessary.

Adding New Daily Types

New daily data types can be added to the PPDB by making the following changes:

- o Add the new daily types and its attributes to the PPDB BLOCK DATA routine PDIBLK. The contents of array IDDTDR (an I*2 array) for the type should be set as follows:

<u>Word</u>	<u>Value</u>	<u>Contents</u>
1	24	Number of words in array for type
2	'ty'	First 2 characters of the data type
3	'pe'	Second 2 characters of the data type
4	I	Default file number; valid values are 1 through 5; if this is a write-only-type then the value is the negative of the subscript of the read-only-type
5	I	Number of pointer values per station
6	I	Number of data values per station
7-24	I	Set to zero

- o Change NMDTYP in routine PDBSIZ to the new number of daily data types. Add any checks specific to this data type.
- o Change NMDTYP in routine PDBINT to the new number of daily data types. Add any checks specific to this data type. If NMDTYP is greater than MXDTYP, then the maximum number of data types that can be stored in the common block must be increased.
- o Changes may need to be made to the data files and/or the read/write routines used to access the data files.
- o Change the User Manual Documentation for programs FILESIZE and FILECRAT (Section I.5 [[Hyperlink](#)]) to include the new data type in the list of valid types for the PPDB.
- o Change the User Manual Documentation for the PPDB read/write routines (Section IX.3.4 [[Hyperlink](#)]) and for the PPDB data files (Section IX.4.2 [[Hyperlink](#)]) to include the new data types.

File Changes When Stations Are Deleted

The following changes are made to the PPDB files when a station is deleted:

1. The station identifier in the Station Information File (SIF) record is changed to 'DELETED'
2. The pointers and data slots are reset for each daily data type:
 - o If data type is PPVR or TAVR, only first pointer word is set to zero so slots can be reused for station with same data time interval.
For all other types, all pointer words are set to zero.
 - o If data type is PPVR or TAVR, data slots are not reset.
For all other types, data slots are set to -9 for precipitation data and -9999 for all other types.
3. The station identifier in the RRS primary record is set to 'DELETED' and the pointer to the next free pool record in the first free pool record is set to -1.
4. The location at which the station was found in the integer and/or character hash arrays is set to -1.